TCG ACC CAC GCG TCC GGC CTT GGC AGA GTC TGG GGT CCC TGG ACT GAG CCA TCA GCT GGG

TCA CTG AGA CCC ATG GCA AGG CAA AAT AGG AAT TCC AAG GAA CTG GGC CTA GTT CCC

CTC ACA GAT GAC ACC AGC CAC GCC GGG CCT CCA GGG AGG GCA CTG CTG GAG TGT

GAC CAC CTG AGG AGT GGG GTG CCA GGT GGA AGG AGA AGA AAG GAC TGG TCC TGC TCG CTC

CTC GTG GCC TCC CTC GCG GGC GCC TTC TCC TCC TTC CTC TAC GGC TAC AAC CTG TCG

GTG GTG AAT GCC CCC ACC CCG TAC ATC AAG GCC TTT TAC AAT GAG TCA TGG GAA AGA AGG

CAT GGA CGT CCA ATA GAC ACT CTG ACT CTG CTC TGG TCT GTG ACT GTG TCC ATA

TTC GCC ATC GGT GGA CTT GTG GGG ACG TTA ATT GTG AAG ATG ATT GGA AAG GTT CTT GGG

FIG. 1A

```
AGG AAG CAC ACT TTG CTG GCC AAT AAT GGG TTT GCA ATT TCT GCT GCA TTG CTG ATG GCC

TGC TCG CTC CAG GCA GGA GCC TTT GAA ATG CTC ATT GTG GGA CGC TTC ATC ATG GGC ATA

GAT GGA GGC GTC GCC CTC AGT GTG CTC CCC ATG TAC CTC AGT GAG ATC TCA CCC AAG GAG

ATC CGT GGC TCT CTG GGG CAG GTG ACT GCC ATC TTT ATC TGC ATT GGC GTG TTC ACT GGG

CAG CTT CTG CCC GAG CTG CTG GGA AAG GAG AGT ACC TGG CCA TAC CTG TTT GGA

GTG ATT GTG GTC CCT GCC GTT GTC CAG CTG CTG AGC CTT CCC TTT CTC CCG GAC AGC CCA

CGC TAC CTC TTG GAG AAG CAC AAC GAG GCA AGA GCT GTG AAA GCC TTC CAA ACG TTC
```

FIG. 1B

TTG GGT AAA GCA GAC GTT TCC CAA GAG GTA GAG GAG GTC CTG GCT GAG AGC CAC GTG CAG

AGG AGC ATC CGC CTG GTG TCC GTG CTG CTG GAG CTG AGA GCT CCC TAC GTC CGC TGG CAG

GTG GTC ACC GTG ATT GTC ACC ATG GCC TGC TAC CAG CTC TGT GGC CTC AAT GCA ATT TGG

TTC TAT ACC AAC AGC ATC TTT GGA AAA GCT ATC CCT CCG GCA AAG ATC CCA TAC GTC

ACC TTG AGT ACA GGG GGC ATC GAG ACT TTG GCT GCC GTC TTC TCT GGT TTG GTC ATT GAG

CAC CTG GGA CGG AGA CCC CTC ATT GGT GGG TTT GGG CTC ATG GGC CTC TTC TTT GGG

ACC CTC ACC ATC ACG CTG ACC CTG CAG GAC CAC GCC CCC TGG GTC CCC TAC CTG AGT ATC

GTG GGC ATT CTG GCC ATC ATC GCC TCT TTC TGC AGT GGG CCA GGT GGC ATC CCG TTC ATC

FIG. 1C

TTG ACT GGT GAG TTC TTC CAG CAA TCT CAG CGG CCG GCT GCC TTC ATC ATT GCA GGC ACC

GTC AAC TGG CTC TCC AAC TTT GCT GTT GGG CTC CTC TTC CCA TTC CAG AAA AGT CTG

GAC ACC TAC TGT TTC CTA GTC TTT GCT ACA ATT TGT ATC ACA GGT GCT ATC TAC CTG TAT

TTT GTG CTG CCT GAG ACC AAA AAC AGA ACC TAT GCA GAA ATC AGC CAG GCA TTT TCC AAA

AGG AAC AAA GCA TAC CCA CCA GAA GAG AAA ATC GAC TCA GCT GTC ACT GAT GCT CCT GCT

TCT TCT CCT TTC ACT ACT CCG AAT ACA GCC TGG ATT CAA GCT GCC GCC ACC ACC GCC

ACC AAA GAA CAC CCA TTG TAA ACG GTC ATG TGG TAT TTC CTC AAC CTG GAA TGA CCT

FIG. 1D

```
TCC CCT ATC TTC TTC TCC TGG AGA ACA CCA AGT CAT GAT GTC AGA CAA GAG CTT GGA TTT
TGG AGA CAT GGG TTT GAA TTC CAG TCA TTC ATT CTT TTA TTC AGC AAA TAT TTA ACA AGT
ACT GAC ATG TCC CAT ATG TTG TTT TAC CCA GTT ATA CAA TGG AGG GAG GGA GAG AGA GAG
AGA GAG AGA GAG AGA GAT GCT ATT CTA AAA GCT TGA AGT GGC GGC TGT GCA CGG TGG CTC
ACG CCT GTA ATC CCA GCA CCT TGG GAG GCC GAG CTC CCT TAA TCG TGA GGT CAG GAG ATT
GAG ACC ATC CTG GCT AAC ATG GTG AAA CTC CCT CTC GGG AAA CTG AGG CAG GAG AAT GCT
GAG CAT GGT GGC GGG CGC CTG TAG TCC CAG CTA GGG AGG CAG GAG TTA GCT
GTG AAC CCA GGA GCT TGC AGT GAG CCG AGA TCA CAC CAC CAC ACT CCA GCC TGG
GTG ACA GAG CCA GAC TCC TCA AAA AAA AAA AAA AAA AAA AAA AAA AAG GGC GGC
CGC
```

FIG. 1E

met ala arg lys gln asn arg asn ser lys glu leu gly leu val pro

leu thr asp asp thr ser his ala gly pro pro gly arg ala leu leu glu cys

asp his leu arg ser gly val pro gly gly arg arg lys asp trp ser cys ser leu

leu val ala ser leu ala gly ala phe gly ser ser phe leu tyr gly tyr asn leu ser

val val asn ala pro thr pro tyr ile lys ala phe tyr asn glu ser trp glu arg arg

his gly arg pro ile asp pro asp thr leu leu leu trp ser val thr val ser ile

phe ala ile gly gly leu val gly thr leu ile val lys met ile gly lys val leu gly

FIG. 2A

```
arg lys his thr leu leu ala asn asn gly phe ala ile ser ala ala leu leu met ala
cys ser leu gln ala gly ala phe glu met leu ile val gly arg phe ile met gly ile
asp gly gly val ala leu ser val leu pro met tyr leu ser glu ile ser pro lys glu
ile arg gly ser leu gly gln val thr ala ile phe ile cys ile gly val phe thr gly
gln leu leu gly leu pro glu leu leu gly lys glu ser thr trp pro tyr leu phe gly
val ile val val pro ala val val gln leu leu ser leu pro phe leu pro asp ser pro
arg tyr leu leu glu lys his asn glu ala arg ala val lys ala phe gln thr phe
```

FIG. 2B

leu gly lys ala asp val ser gln glu glu val leu ala glu ser his val gln

arg ser ile arg leu val ser val leu glu leu leu arg ala pro tyr val arg trp gln

val val thr val ile val thr met ala cys tyr gln leu cys gly leu asn ala ile trp

phe tyr asn ser ile phe gly lys ala gly ile pro pro ala lys ile pro tyr val

thr leu ser thr gly gly ile glu thr leu ala ala val phe ser gly leu val ile glu

his leu gly arg arg pro leu leu ile gly gly phe gly leu met gly leu phe phe gly

thr leu thr ile thr leu gln asp his ala pro trp val pro tyr leu ser ile

val gly ile leu ala ile ile ala ser phe cys ser gly pro gly gly ile pro phe ile

FIG. 2C

```
leu thr gly glu phe phe gln gln ser gln arg pro ala ala phe ile ile ala gly thr

val asn trp leu ser asn phe ala val gly leu leu phe pro phe ile gln lys ser leu

asp thr tyr cys phe leu val phe ala thr ile cys ile thr gly ala ile tyr leu tyr

phe val leu pro glu thr lys asn arg thr tyr ala glu ile ser gln ala phe ser lys

arg asn lys ala tyr pro pro glu glu lys ile asp ser ala val thr asp ala pro ala

ser ser pro phe thr thr pro asn thr ala trp ile gln ala ala ala thr thr thr ala

thr lys lys glu his pro leu
```

FIG. 2D

```
M X X G F Q X - G S - - - - - - - - - - - - - - - - - - - - - - -   Majority
                  10                  20                  30

M - - G F S K L G K - - - - - - - - - - - - - - - - - - - - - - -   glut1
M D G K S K M - - - - - - - - - - - - - - - - - - - - - - - - - -   glut2
M G T T - - - - - - - - - - - - - - - - - - - - - - - - - - - - -   glut3
M P S G F Q Q I G S E D - - - - - - - - - - - - - - - - - - - - -   glut4
M E Q Q D Q S M K E G R L T L V - - - - - - - - - - - - - - - - -   glut5
M A R K - Q N R N S K E L G L V P L T D D T S H A G P P G P        GlutX

- - - - - - - - - - - - - - - - - - - - - - - - - - V T G T L V L A   Majority
                  40                  50                  60

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -   glut1
- - - - - - - - - - - - - - - - - Q A E K H L T G T L V L S         glut2
- - - - - - - - - - - - - - - - - - - K V T T P L I F A             glut3
- - - - - - - - - - - - - - - - G E P P Q Q R V T G T L V L A       glut4
- - - - - - - - - - - - - - - - - - - - - - - - A L A               glut5
G R A L L E C D H L R S G V P G G R R R K D W S C S I L V A         GlutX

V L I A A L G S - F Q Y G Y N L G V I N A P Q K V I E A F Y   Majority
                  70                  80                  90

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -   glut1
V F T A V L G F - F Q Y G Y S L G V I N A P Q K V I E A H Y   glut2
I S I A T I G S - F Q F G Y N T G V I N A P E A I K D - F     glut3
V F S A V L G S - L Q F G Y N I G V I N A P Q K V I E Q S Y   glut4
T L I A A F G S S F Q Y G Y N V A A V M S P A L L M Q Q F Y   glut5
S L A G A F G S S F L Y G Y N L S V V N A P T P Y I K A F Y   GlutX

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -   Majority
                  100                 110                 120

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -   glut1
G R M L G A I P M V R H A T N T S R D N A T I T V T I P G T   glut2
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - L   glut3
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - N   glut4
N - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -   glut5
N - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -   GlutX

E T W L G R K G E X - P S - - - - - - - V - P - T L T L L W   Majority
                  130                 140                 150

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -   glut1
F A M G S S E G T L A P S A G F E D P T V S P H I L T M Y W   glut2
N Y T L E E R S H T P P S S - - - - - - V - - - L L T S L W   glut3
E T W L G R Q G P E G P S S - - - - - - I P P G T L T T L W   glut4
E T Y Y G R T G E F - - - - - - - - - - M E D F P L T L L W   glut5
E S V E R R H G R P - - - - - - - - - - I D P D T L T L L W   GlutX

S L S V S I F A V G G M I G S F L V G X I G N R L G R K X A   Majority
                  160                 170                 180

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -   glut1
S L S V S M F A V G G M V S S F T V G W T G D R L G R V K A   glut2
S L S V A I F S V G G M I G S F S V G L F V I R F G R R N S   glut3
A L S V A I F S V G G M I S S F L I G I I S Q W L G R K R A   glut4
S V T V S M F P F G G F I G S L L V G P L V I K F G R K G A   glut5
S V T V S I F A I G G L V G T L I V K M I G K V L G R K H T   GlutX
```

FIG. 3A

FIG. 3B
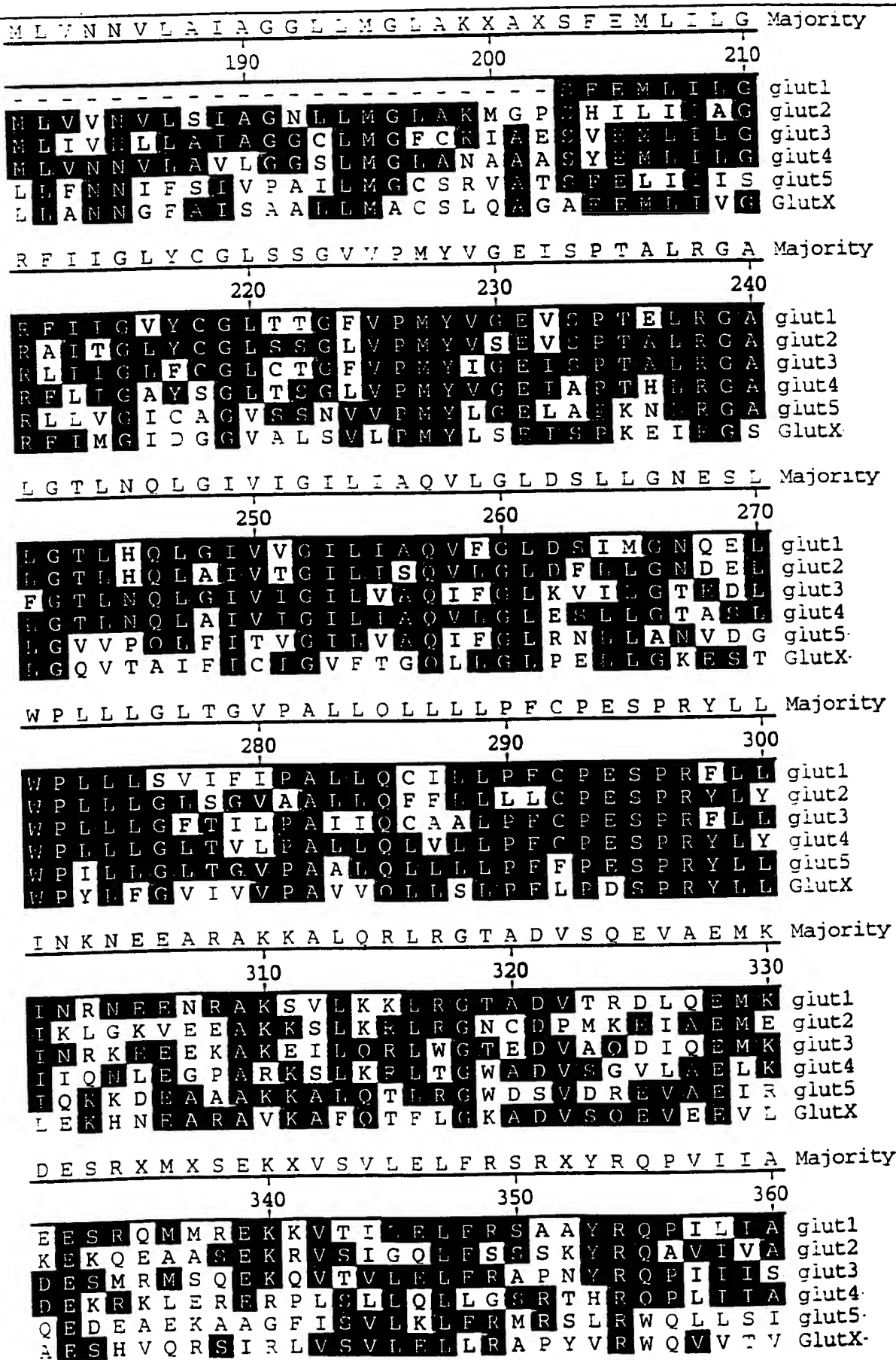
```
        I V L Q L S Q Q L S G I N A V F Y Y S T S I F E K A G V G Q   Majority
                    370              380              390
167  V V L Q L S Q Q L S G I N A V F Y Y S T S I F E K A G V Q Q   giut1-pro
320  L M V Q I S Q Q F S G I N A I F Y Y S T N I F Q R A G V G Q   giut2-pro
274  I M L Q L S Q Q L S G I N A V F Y Y S T G I F K D A G V Q E   giut3-pro
292  V V L Q L S Q Q L S G I N A V F Y Y S T S I F E T A G V G Q   giut4-pro
282  I V L M G G Q Q L S G V N A I Y Y A D Q I Y L S A G V P E   giut5-pro
321  I V T M A C Y Q L C G L A I W F Y T N I F G R A G I P P   GlutX-pro-
                                                              final-2/6/98

        P - - V Y A T I G A G V V N T V F T V V S V F V V E R A G R   Majority
                    400              410              420
197  P - - V Y A T I G S G I V N T A F T V V S L F V V E R A G R   giut1-pro
350  P - - V Y A T I G V G V V N T V F T V I C V F L V E K A G R   giut2-pro
304  P - - V Y A T I G A G V V N T I F T V V S V F L V E R A G R   giut3-pro
322  P - - A V A T I G A G V V N T V F T L V S V L L V E R A G R   giut4-pro
312  E H V Q V V T A G T G A V N V M T F C A V F V V E L L G R   giut5-pro
351  A K I P V V T L S T G I E T L A A V F S G L V I F H L G R   GlutX-pro-
                                                              final-2/6/98

        R T L H L L G L G G M A G C A V L M T I A L A L L D Q V P W   Majority
                    430              440              450
225  R T L H L I G L A G M A G C A V L M T I A L A L L E Q L P W   giut1-pro
378  R S L F L A G L M G M L I S A V A K T V G L V L L S Q F A W   giut2-pro
332  R T L H L I G L G G M A F C S I L M T T S L L K D N Y S W   giut3-pro
350  R T L H L L G L A G M C G C A I L M T V A L L L I E R V P A   giut4-pro
342  R L L L L L G F S I C L I A C C V L T A A L A L Q D T V S W   giut5-pro
381  R P L L I G G F G L M G L F F G T L T I T T L Q D H A P W   GlutX-pro-
                                                              final-2/6/98

        M S Y V S I V A I F G F V A F F E V G P G P I P W F I V A E   Majority
                    460              470              480
255  M S Y L S I V A I F G F V A F F E V G P G P I P W F I V A E   giut1-pro
408  M S Y V S M V A I F L F V I F F E V G P G P I P W F I V A E   giut2-pro
362  M S F I C I G A I L V F V A F F E I G P G P I P W F I V A E   giut3-pro
380  M S Y V S I V A I F G F V A F F E I G P G P I P W F I V A E   giut4-pro
372  M P Y I S I V C V I S Y V I G H A L G P S P I P A L L I T E   giut5-pro
411  V P Y L S I V G I L A I I A S F C S G P G G I P F I L T G F   GlutX-pro-
                                                              final-2/6/98

        L F S Q G P R P A A I A V A G F S N W T S N F I V G L L F Q   Majority
                    490              500              510
285  L F S Q G P R P A A I A V A G F S N W T S N F I V G M C F Q   giut1-pro
438  L F S Q G P R P A A I A V A G F C N W A C N F I V G M C F Q   giut2-pro
392  L F G Q G P R P A A M A V A G F C S N W T S N F L V G L L F P   giut3-pro
410  L F S Q G P R P A A M A V A G F S N W T S N F I G M G F Q   giut4-pro
402  I F L Q S S R P S A F M V G G S V H L S N F T V G L I F P   giut5-pro
441  F F Q S Q R P A A F I I A G T V I W L S N F A V G L L F P   GlutX-pro-
                                                              final-2/6/98

        Y I A E L L G P Y V F I V F A V L L L L F F I F T F L K V P   Majority
                    520              530              540
315  Y V E Q L C G P Y V F I I F T V L L V L F F I F T Y F K V P   giut1-pro
468  Y I A D L C G P Y V F V F A V L L L V F F L F A Y L K V P   giut2-pro
422  S A T F Y L G A Y V F T V F T V F L V I W V F F F K V P   giut3-pro
440  V V A E A M G P Y V F L L F A V L L L G F F I F T F L R V P   giut4-pro
432  F I Q F G L G P Y S F I V F A V I C L I T T I Y I F L I V P   giut5-pro
471  F I Q K S L D T Y C F L V F A T I C I T G A I Y L Y F V L P   GlutX-pro-
                                                              final-2/6/98
```

FIG. 3C

```
E T K G R T F D E I A A A F R K X N K X - X Q - P E K E S I   Majority
              550                 560                 570

E T K G R T F D E I A S G F R Q G G A - - S Q - S D K T P E   glut1
E T K G K S F E E I A A A F R R K K L P A K - - - - - - K M   glut2
E T R G R T F E E I T R A F E G Q V Q T G T R - G K K G P T   glut3
E T R G R T F D Q I S A A F H E P P S L L E Q - E V K P S T   glut4
E T K A K T F I E I N Q I F T K M N K V S E V Y P K E E L    glut5
E T K N R T Y A E I S Q A F S K R N K A - - - Y P P E R K I   GlutX

E E L E P L G P D - - - - - - - - - - - - - - - - - - - - -   Majority
              580                 590                 600

F L F H P L G A D - - - - - - - - - - - - - - - - - - - - -   glut1
T E L E D L R G G - - - - - - - - - - - - - - - - - - - - -   glut2
M E M N S I Q P T - - - - - - - - - - - - - - - - - - - - -   glut3
E L - E Y L G P D - - - - - - - - - - - - - - - - - - - - -   glut4
K E L P V T S E - - - - - - - - - - - - - - - - - - - - - -   glut5
D S A V T D A P A S S P F T T P N T A W I Q A A A T T T A T   GlutX

- - E - - X -                                                 Majority

- - S Q V .                                                   glut1
- - E - - E A                                                 glut2
- - K D T N A                                                 glut3
- - E N - D                                                   glut4
- - - - - - Q                                                 glut5
K K E H P L .                                                 GlutX
```
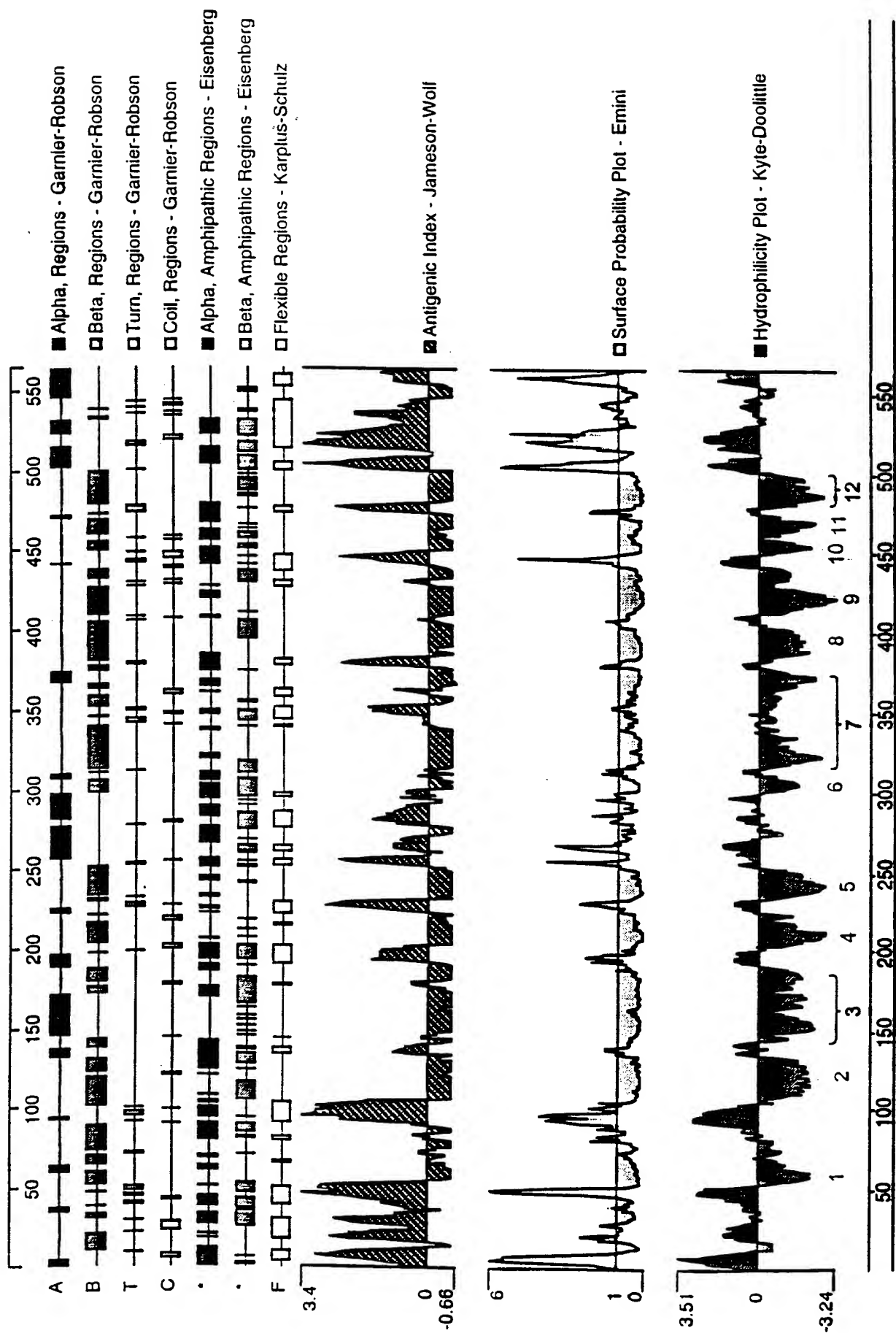
FIG. 3D

FIG. 4